REMARKS/ARGUMENTS

1.) Claim Amendments

The Applicants have amended claim 15. Accordingly, claims 1-3, 6-7, 9-13, 15, 17-18, and 35-49 are pending in the application. Favorable reconsideration of the application is respectfully requested in view of the foregoing amendments and the following remarks.

2.) Claim Rejections – 35 U.S.C. § 103(a)

In paragraphs 1-2 of the Final Office Action, the Examiner rejected claims 1-3, 6-7, 9-13, 17-18 and 35-49 under 35 U.S.C. § 103(a) as being obvious over Applicant's Admitted Prior Art (hereinafter AAPA) in view of Ramakrishnan (US 5,974,028). The Applicants respectfully disagree and request the Examiner's reconsideration of the pending claims in view of the following remarks.

Claim 1 recites a method of controlling a data unit oriented communication. In the method, data loss can be detected either by detecting that a time out period has expired, or by detecting a predetermined number of duplicate acknowledgement data units. Thus, specific triggering events are associated with a specific data loss detection method.

In accordance with the invention, if one of the triggering events occurs, a response procedure is conducted, in which a given data unit is retransmitted. The given data unit can be, for example, the data unit that caused the time out, or the data unit inferred as missing by the duplicate acknowledgements. The method also includes at least two different modes for adapting adaptive flow control parameters. The invention is characterized by the fact that after retransmission of the given data unit, the response procedure makes an explicit decision regarding which of the two modes to utilize, and then performs either an excessive delay response procedure or a data unit loss procedure. As recited in claim 1, this decision is made by determining whether the received acknowledgment data unit indicates that one of the correctly received data units was correctly received as a result of the transmitting step or as a result of the retransmitting step.

An example of this is shown in Fig. 1. Namely, the retransmission is conducted in step S3, and some time later the explicit decision S5 is conducted. In the example, this provides the possibility of retrofitting the adaptive parameters that were set in step S2 after the response procedure was initiated.

The general teaching of the present invention therefore is that an event is first detected that triggers a response procedure, and the response procedure leads to a data unit retransmission. Moreover, *after the retransmission*, acknowledgement data units are observed, in order to make an explicit decision regarding an adaptation of flow control parameters. Using the general concept of the invention, numerous advantages can be achieved. For example, it is possible to distinguish between delayed and lost data units, as extensively discussed in connection with the example of Fig. 1.

The AAPA and Ramakrishnan do not disclose or suggest claim 1. In Ramakrishnan, a very specific concept of detecting data loss is described; namely the use of selective acknowledgements (SACKs). The SACKs utilize a bit map, where one symbol indicates a packet received without error and the complementary symbol indicates a packet that was not received or is received with error. In the examples this error indication symbol is 0.

It is important to note that the data loss detection mechanism of Ramakrishnan utilizes a specific symbol in the SACKs. Consequently, when detecting such a symbol, the identified packet is retransmitted. Moreover, it is noted that the system described in Ramakrishnan retransmits such an identified data unit each time that the corresponding symbol is received in a SACK. This response procedure leading to a retransmission does not change the flow control parameters.

More specifically, although Ramakrishnan also mentions the invocation of a congestion mechanism, this invocation of a congestion mechanism is completely independent of the procedure for retransmission. Namely, the congestion mechanism is invoked whenever three duplicate SACKs are received, irrespective of the retransmission. This is explicitly mentioned in Ramakrishnan at column 6, lines 46-50.

This has two important consequences. First, the response procedure as disclosed in Ramakrishnan does not include two different modes for adapting one or more adaptive flow control parameters. The response procedure disclosed in

Ramakrishnan only retransmits a data unit, and does nothing else. Second, Ramakrishnan does not disclose an explicit decision step for choosing between two modes. The system of Ramakrishnan is completely passive, and merely reacts to two different triggering events, namely, on the one hand the occurrence of a 0 in a SACK, which triggers a retransmission, and independently thereof, the occurrence of three duplicate SACKs, which triggers a congestion mechanism. There is no connection or association between the retransmission and the invocation of the congestion mechanism. There is certainly no suggestion of an explicit step for deciding between two different modes.

Thus, the subject matter of claim 1 is not suggested by Ramakrishnan because Ramakrishnan in fact relates to a completely different concept. As mentioned above, the basic concept of Ramakrishnan is to completely separate the retransmission mechanism from the congestion mechanism. The idea of the present invention is the exact contrary. The retransmission mechanism and a mechanism for adapting flow control parameters are brought into a specific association, this specific association being that an explicit decision on the choice of a mode for adapting the flow control parameters is performed with respect to and after the retransmission for a given data unit. Such a concept is clearly not derivable from Ramakrishnan.

This conclusion is emphasized by the fact that Ramakrishnan cannot provide the advantages that the present invention provides. In column 7, lines 36-49 of Ramakrishnan, it is explicitly indicated that the system of Ramakrishnan cannot solve the problem of excessive delay. In other words, if excessive delay occurs, then a congestion mechanism can be erroneously invoked.

In contrast thereto, the present invention solves this problem. The solution lies in examining the acknowledgement data units after the retransmission and then, in retrospect, adapting the flow control parameters correctly. It is again very clear that Ramakrishnan does not teach or suggest this concept of retroactively adapting flow control parameters. Therefore, the allowance of claim 1 is respectfully requested.

Claims 2-3, 6-7, 9-13, and 17-18 depend from base claim 1 and recite further limitations in combination with the novel elements of claim 1. Therefore, the allowance of claims 2-3, 6-7, 9-13, and 17-18 is respectfully requested.

Independent claim 35 is a device claim reciting the same novel features as claim 1. Therefore, the allowance of claim 1 is respectfully requested for the reasons discussed above.

Claims 36-47 depend from base claim 35 and recite further limitations in combination with the novel elements of claim 35. Therefore, the allowance of claims 36-47 is respectfully requested.

Independent claim 48 is a method claim reciting an improvement over the prior art, wherein the improvement comprises the step of selecting by the response procedure, a mode for adapting the one or more adaptive parameters of the flow control procedure, the mode being selected from at least two different modes, and being selected based on one or more acknowledgment data units received by the sender after having re-sent the given data unit. Thus, claim 48 also recites the same novel features as claim 1. Therefore, the allowance of claim 48 is respectfully requested for the reasons discussed above.

Claim 49 depends from base claim 48 and recites further limitations in combination with the novel elements of claim 48. Therefore, the allowance of claim 49 is respectfully requested.

3.) Allowable Subject Matter

In paragraph 4 of the Final Office Action, the Examiner objected to claim 15 as being dependent on a rejected base claim, but stated that it would be allowable if rewritten in independent form to include all the limitations of the base claim and any intervening claims. Claim 15 has been rewritten in this manner. Therefore, the allowance of amended claim 15 is respectfully requested.

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CONCLUSION

In view of the foregoing remarks, the Applicants believe all of the claims currently pending in the Application to be in a condition for allowance. The Applicants, therefore, respectfully request that the Examiner withdraw all rejections and issue a Notice of Allowance for claims 1-3, 6-7, 9-13, 15, 17-18, and 35-49.

The Applicants request a telephonic interview if the Examiner has any questions or requires any additional information that would further or expedite the prosecution of the Application.

Respectfully submitted,

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